

In time-sharing... TIME IS MONEY!

Downtime COSTS money!

The Model 5045 DISCfile® System

is in the time-sharing business. More than 250 systems, encompassing four generations of **DISCfiles** are currently operating in time-sharing and other demanding environments.

THE KEY TO THIS DRAMATIC CUSTOMER ACCEPTANCE IS **OPERATIONAL RELIABILITY!**



data products

Data Products' **DISCFILE** random access memory systems combine large capacity and speed of access with unique design features to provide highest reliability at lowest cost per reliable bit. **DISCFILE** systems allow the addition of a mass, random access disc storage capability, or the expansion of present computer system storage capability. The **DISCFILE** provides the principal storage for files, programs, sub-routines, assembly and compiler routines, in addition to voluminous working storage area.

OPTIMUM SYSTEMS CAPABILITY ... WITH PROVEN RELIABILITY!

UNIQUE READ/WRITE HEAD POSITIONER

The positioner is a simple electromagnetic transducer. There are no hydraulics or mechanical detents to maintain. The ultra-reliable linear positioner has also been supplied in quantity (over 3000 units) as a component of other manufacturers' systems.

GUARANTEED ERROR-FREE RECORDING MEDIA

No catastrophic loss of data or costly reprogramming due to insidious bad spots.

INTEGRATED CIRCUITS

All solid-state devices are silicon. The integrated circuit electronics contribute significantly to the **DISCFILE**'s extremely low error rates.

PROVEN READ/WRITE ELECTRONICS

Data Products' proprietary read/write electronics insure dependable storage and retrieval of data. This capability is enhanced by the careful selection of bit-packing densities to provide optimum read/write margins.

ENVIRONMENT

The lack of large hydraulic devices and general conservative design permit normal operation without cooling devices. Operates in normal computer room atmosphere.

RIGID QUALITY CONTROL

The above features would be meaningless without an intense, comprehensive program of quality control in every stage of manufacturing, fabrication, and testing. Each part is tested and inspected using sensitive and precise optical and electrical devices. Each major assembly is thoroughly tested before being integrated into the system. A lengthy reliability test ensures strict adherence to operational specifications.



The reliable DISCfile System provides very low total operating cost!

RELIABILITY IS ONLY HALF THE STORY!

The following features combine to make the **DISCfile** the most flexible, useful and maintainable mass storage disc memory available:

INHERENT DUAL-CHANNEL CAPABILITY

The independent positioner approach gives the **DISCfile** inherent dual channel capability. Any combination of seek, read or write over both channels can be performed simultaneously.

THE DISCfile IS A COMPLETE SUB-SYSTEM

The model 5045 **DISCfile** provides convenient interface between the computer and up to eight disc units. The dual-switch feature permits each Control Unit to communicate with both channels of each **DISCfile** or a total of 16 access channels. These devices completely control address processing and data formatting and provide comprehensive error checking and off-line testing capabilities.



Control Unit

MULTIPLE-SEEK CAPABILITY

Each disc unit channel is capable of storing an address and completely controlling one of the independent positioners. Thus a Control Unit may alternately operate upon each connected channel, effectively masking seek delays. The **DISCfile** can, in some applications, exhibit operating rates approaching those normally associated with fixed head devices.

WRITE LOCKOUT

The **DISCfile** incorporates this as a standard feature. Any one or combination of discs may be manually locked out from being erased or written upon. Thus, critical data is completely protected and preserved for reading only.



Test Panel Controls and Indicators

NO MECHANICAL ADJUSTMENTS

This electromechanical peripheral requires no periodic mechanical adjustment. The unique positioning device is self-adjusting. The heads fly at a predetermined height independent of disc undulations. Their flying attitude is built-in; no adjustment or alignment is needed.

FLEXIBLE INTERFACE

The Model 5045 can be supplied with a number of different interface configurations. The lowest level unit provides for only the unique control, positioning, and read/write electronics. More complex interfaces can be provided up to the point where the **DISCfile** and its associated electronics can be connected directly to a specified computer system.

FAST ACCESS FIXED HEADS

This option permits very fast access to additional data by means of up to 96 fixed heads. *how fast?*

MAINTAINABILITY

Scheduled procedures are simple and straightforward. These procedures can easily be performed by the normal maintenance personnel required to service electronic equipment.

SERVICE

Data Products maintains a permanent staff of trained field engineering personnel throughout the United States and Europe. The training department has developed a comprehensive curriculum geared to indoctrinate engineering, maintenance and operating personnel in every aspect of the **DISCfile**. Our experienced design and applications engineers are always available to insure optimum solutions to your external mass storage requirements.

SYSTEM SPECIFICATIONS

Following is a list of the more pertinent specifications for the Model 5044 and 5045 **DISCFILE** Systems. A comprehensive product specification will be supplied upon request. Should you have any unique hardware or software problems, Data Products will be pleased to submit a detailed technical proposal outlining possible solutions.

SYSTEM ORGANIZATION

Disc Units per System: From 1 to 8
Discs per Unit: Model 5045: Up to 32
Model 5044: Up to 16
Tracks per Disc: 512
Positions per Disc: 64
Tracks per Position: 8 (four inner zone,
four outer zone)

ADDRESSABLE CAPACITY (TYPICAL)

Data Bits per Track: Outer Zone: 65,536
Inner Zone: 32,768
Data Bits per Disc: 24.6×10^6
Data Bits per Cylinder: 766,432
(accessible without
intervening motion time)
Data Bits per Disc Unit: Model 5045: 787×10^6
Model 5044: 396.5×10^6
Data Bits per Total System: $6,294 \times 10^6$

DATA ORGANIZATION (Typical)

Record Lengths: 1600 to 8000 bits
Records per Track: Inner Zone: 4 to 16
Outer Zone: 8 to 32
Records per Disc Unit: 98,000 to 390,000

FIXED HEAD OPTION

Number of Heads: Up to 96
Additional Data Bits: Up to 5.1 million
Average Access Times: 26 msec

DISC ROTATIONAL SPEED

60 Hz: 1200 rpm
50 Hz: 1000 rpm

TRANSFER RATES (NOMINAL)

Inner Zone: 600 KHz or $1.67 \mu\text{sec}$ bit-to-bit
Outer Zone: 1200 KHz or $0.84 \mu\text{sec}$ bit-to-bit

AVERAGE RANDOM ACCESS TIME

(including all delays and latency): 205 msec (typical)
The effective access time can be halved by dual channel operation.

TRACK DIMENSIONS

Center to Center: 37.5 mils
Erase Gap Width: 40 mils
Read/Write Gap Width: 25 mils

CONTROL UNIT FEATURES

Dual Computer Interface. Two separate, independent and identical computer interfaces, each capable of complete address processing, format control and data transfer.



Multi-Channel Control. Capable of alternately addressing and operating upon up to eight disc unit channels (up to 16 channels with the dual switch feature).

Error Checking. Extensive checking of interface signal sequence, internal logic control and data storage and retrieval integrity.

Maintenance Panel. Comprehensive array of switches and indicators to permit off-line simulation and monitoring of normal operations.

PHYSICAL

	DISCFILE	Control Unit
Dimensions:		
Width:	68.5"	18"
Depth:	36.5"	36.5"
Height:	70"	70"
Weight:	3450 lbs.	445 lbs.
Shipping Weight:	3750 lbs.	545 lbs.
Floor Loading:	207 lbs./sq. ft.	111 lbs./caster
Pad Loading:	435 lbs./pad	

ENVIRONMENTAL

Operating:
Temperature: 85°F (30°C) max., 60°F (15°C) min.
Relative Humidity: 80% max., 20% min.
Shipping and Storage:
Temperature: 150°F (65°C) max., -20°F (-28°C) min.
Relative Humidity: 98% max.

POWER

Input Power:
Voltage: 208,384 or $415 \pm 10\%$
Frequency: 50 or 60 Hz ± 1 Hz.
Phase: Three
Power Dissipation: Disc Unit, 6.5 kw max.
Control Unit, 1.5 kw max.



data products corporation

OEM PRODUCTS DIVISION
8535 Warner Drive • Culver City, California 90230
Phone: (213) 837-4491 • Telex: 674734

INTERNATIONAL OFFICE
Atom Building • Schiphol Oost • The Netherlands
Phone: (020) 156297/719889
Cable: Datapro • Telex: 13211